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(54) ASSEMBLY STRUCTURE OF THERMAL THERAPEUTIC APPARATUS

[ABSTRACT]

An assembly structure of a thermal therapeutic apparatus for pressuring, fomenting and adjusting a user's backbone is disclosed. The assembly structure includes: an upper treatment mat on which a backbone adjustment device for allowing treatment

elements such as a roller or a pressure ball to reciprocate back and forth is installed lengthwise, for supporting the upper body of the user, and a lower treatment mat, in the middle portion of which a foot treatment device 120a is formed, for supporting the lower body of the user. Especially, the assembly structure includes: first assembled bodies which are formed as a structure as thermal treatment parts are installed on base plates of an upper treatment mat and a lower treatment mat, respectively; middle assembled bodies at the front and rear sides of which covering units for covering the thermal treatment parts are formed, having side plates coupled to lower right and left ends of the covering units by the coupling bolts; and second assembled bodies which are integrally coupled to upper portions of the middle assembled bodies. The second assembled bodies form cavities in the middle portion thereof, which are used by the thermal treatment parts. The surfaces of the second assembled bodies forming the cavities are urethanes and covered by artificial leathers. The second assembled bodies are separated from the first assembled bodies, together with the middle assembled bodies, such that the thermal treatment parts can be exposed to the outside. Therefore, the present invention can reduce production costs and allow an operator to easily perform an assembling work and after-sale-services.

[Representative Figure]

Figure 3

[Index words]

first assembled body, middle assembled body, second assembled body

[Description]

[Brief Description of the Drawings]

Figure 1 shows a perspective view illustrating a thermal therapeutic apparatus according to the present invention;

Figure 2 shows a partially separated perspective view of a thermal therapeutic apparatus according to the present invention;

Figure 3 shows a perspective view illustrating a primary part of a thermal therapeutic apparatus according to the present invention;

Figure 4 shows a cross-sectional view taken along line A-A of Figure 1;

Figure 5 shows a cross-sectional view taken along line B-B of Figure 1;

Figure 6 shows a cross-sectional view taken along line C-C of Figure 1; and

Figure 7 is a cross-sectional view illustrating a state when after-sale-services are performed on a thermal therapeutic apparatus according to the present invention.

(Figure numerals)

100, 100a: first assembled body

100, 110a: base plate
120, 120a: thermal treatment part
130, 130a, 230, 230a: coupling hole
200, 200a: middle assembled body
210, 210a: covering unit
220, 220a: side plate
300, 300a: artificial leather
300, 330a: urethane

[Detailed Description of the Invention]

[Purpose of the Invention]

[Field of the Invention and Prior Art]

The present invention is generally related to techniques for a thermal therapeutic apparatus, and, more particularly, to an assembly structure of a thermal therapeutic apparatus for pressuring, fomenting and adjusting a backbone of a user, which can be manufactured by a low production cost and allow an operator to easily perform an assembling work and after-sale-services.

Recently, as peoples are concerned about their health with rapid improvement of living standards, individual's thermal therapeutic apparatus is introduced to press, foment and adjust his/her backbone at comfort of their home. Also, there have been many studies that were performed for effective use of the thermal therapeutic apparatus.

The configuration of the thermal therapeutic apparatus will be briefly described through an example. The thermal therapeutic apparatus is divided into an upper treatment mat and a lower

treatment mat. The upper treatment mat supports the upper body of a user and the lower treatment mat supports the lower body of the user.

A thermal treatment part for performing thermal treatment is installed on the upper treatment mat and the lower treatment mat.

A backbone adjustment device being used as the thermal treatment part includes: treatment elements shaped as a roller or an acupressure ball contacting the backbone of the user; a driving force transmission device (a belt, a chain, a wire, etc.) which is integrally coupled to the treatment elements and allows the treatment elements to reciprocate back and forth; a forward/reverse motor and a driven unit for driving the driving force transmission device, in which the forward/reverse motor and a driven unit are installed to the front and rear of the driving force transmission device; a guide rail for guiding the treatment elements back and forth; a covering unit for shielding and protecting the forward/reverse motor and a driven unit.

A foot treatment device used as the thermal treatment part includes: a foot pressuring plate for stimulating or fomenting user's soles using protrusions formed at the foreside and treatment lamps installed at the inside; a guide rail formed at the lower end of the foot pressuring plate, for guiding the foot treatment device back and forth according to a user's height; recovering springs for recovering the guide rail; and a covering unit for shielding and protecting the guide rail and the recovering springs, etc.

The thermal therapeutic apparatus applied thermal treatment to a user as the backbone adjustment device presses, foments and adjusts the user's backbone or the foot treatment device presses and foments the user's soles. The conventional thermal therapeutic apparatus is configured such that: the thermal treatment parts (the backbone adjustment device, the foot treatment device, etc.) are installed and fixed on a wide base plate, respectively; a urethane is integrally adhered and fixed to the base plate; and the urethane and the base plate are enclosed by an artificial leather.

Namely, the thermal treatment parts, a urethane and an artificial leather must be prepared, respectively, and then assembled on the base plate. Such working processes make the production cost increase and the work processes complicate, thereby decreasing productivity of the conventional thermal therapeutic apparatus.

Especially, when performing an after-sale-service, the artificial leather must be uncovered and then the urethane and the covering units have to be disassembled such in a way as to expose all the thermal treatment parts. After completing the after-sale-service, the disassembled parts must be reassembled and reinstalled.

[Technical Subject of the Invention]

Therefore, the present invention was created to resolve the problem with the conventional art as described above and the object of the present invention is to provide an assembly

structure of a thermal therapeutic apparatus for pressuring, fomenting and adjusting a backbone of a user, which can be manufactured by a low production cost and allow a user to easily perform an assembling work and after-sale-services.

[Construction and Operation of the Invention]

The foregoing object of the present invention may be achieved by providing an assembly structure of a thermal therapeutic apparatus including first assembled bodies, middle assembled bodies, and second assembled bodies.

The first assembled bodies are formed as a structure as thermal treatment parts are installed on base plates of an upper treatment mat and a lower treatment mat, respectively.

Covering units for covering the thermal treatment parts are formed at the front and rear sides of the middle assembled bodies. The middle assembled bodies have side plates coupled to lower right and left ends of the covering units by the coupling bolts.

The second assembled bodies form cavities in the middle portion thereof, which are used by the thermal treatment parts. The surfaces of the second assembled bodies forming the cavities are urethanes and covered by artificial leathers. The second assembled bodies are separated from the first assembled bodies, together with the middle assembled bodies, such that the thermal treatment parts can be exposed to the outside.

Preferred embodiment of the present invention will be described in detail with the accompanying drawings.

Figure 1 shows a perspective view illustrating a thermal

therapeutic apparatus according to the present invention. Figure 2 shows a partially separated perspective view of a thermal therapeutic apparatus according to the present invention. Figure 3 shows a perspective view illustrating a primary part of a thermal therapeutic apparatus according to the present invention.

Figure 4 shows a cross-sectional view taken along line A-A of Figure 1. Figure 5 shows a cross-sectional view taken along line B-B of Figure 1. Figure 6 shows a cross-sectional view taken along line C-C of Figure 1. Figure 7 is a cross-sectional view illustrating a state when repair services are performed on a thermal therapeutic apparatus according to the present invention.

Like the conventional thermal therapeutic apparatus, the thermal therapeutic apparatus of the present invention is divided into an upper treatment mat 500 and a lower treatment mat 510. The upper treatment mat 500 supports the upper body of a user and the lower treatment mat 510 supports the lower body of the user.

A backbone adjustment device used as a thermal treatment part 120 on the upper treatment mat 500 includes: treatment elements 122 shaped as a roller or an acupressure ball contacting the backbone of the user; a driving force transmission device 123 (a belt, a chain, a wire, etc.) which is integrally coupled to the treatment elements and allows the treatment elements to reciprocate back and forth; a forward/reverse motor 125 and a driven unit 121 for driving the driving force transmission device, in which the forward/reverse motor 125 and the driven unit 121 are installed to the front side and rear side of the driving force

transmission device 123; a guide rail 124 for guiding the treatment elements 122 back and forth; a covering unit 210 for shielding and protecting the forward/reverse motor 125 and the driven unit 121.

A foot treatment device used as a thermal treatment part 120a on the lower treatment mat 510 includes: a foot pressuring plate 126 for stimulating or fomenting user's soles using protrusions formed at the foreside and treatment lamps installed at the inside; a guide rail 127 formed at the lower portion of the foot pressuring plate, for guiding the foot treatment device back and forth according to a user's height; recovering springs 128 for recovering the guide rail 127; and a covering unit 210a for shielding and protecting the recovering springs 128 and the guide rail 127, etc.

The present invention is characterized in that the assembly structure of the thermal therapeutic apparatus is improved to allow an operator to easily perform the assembling work and after-sale-services. As shown in Figures 1 to 6, the upper treatment mat 500 is divided into a first assembled body 100, a middle assembled body 200, and a second assembled body 300, and the lower treatment mat 510 are each divided into a first assembled body 100a, a middle assembled body 200a, and a second assembled body 300a. The middle assembled bodies 200 and 200a are integrally coupled to the lower ends of the second assembled bodies 200 and 200a, respectively.

The first assembled body 100 of the upper treatment mat 500 is made as the backbone adjustment device is installed on the upper

end of the base plate 110, in which the backbone adjustment device includes thermal treatment elements 120, such as a treatment element 122, a driving force transmission device 123, a forward/reverse motor 125, a driven unit 121, and a guide rail 124.

The middle assembled body 200 installs covering units 210 for covering the thermal treatment part 120 at the front and rear sides thereof. Lower left and right ends of the covering unit 210 are coupled to the middle assembled body 200 by coupling bolts 240. The middle assembled body 200 is integrally coupled to the second assembled body 300 when being manufactured.

The second assembled body 300 forms a cavity in its middle portion, which is to be used by the thermal treatment part 120. The surface of the second assembled body 300 forming the cavity is a urethane 330 and covered by the artificial leather 320. When after-sale-services are performed, the second assembled body 300 integrally coupled to the middle assembled body 200 is separated from the thermal therapeutic apparatus to expose the thermal treatment part 120 (the backbone adjustment device) of the first assembled body 100 to the outside.

The first assembled body 100a of the lower treatment mat 510 is made as the foot treatment device is installed on the upper end of the base plate 110a, in which the foot treatment device includes thermal treatment elements 120a, such as a foot pressure plate 126, a guide rail 127 and recovering springs 128, etc.

The middle assembled body 200a installs covering units 210 for covering the thermal treatment part 120a at the front and rear

sides thereof. Lower left and right ends of the covering unit 210a are coupled to the middle assembled body 200a by coupling bolts 240a. The middle assembled body 200a is integrally coupled to the second assembled body 300a when being manufactured.

The second assembled body 300a forms a cavity in its middle portion, which is used by the thermal treatment part 120a. The surface of the second assembled body 300a forming the cavity is a urethane 330a and covered by the artificial leather 320a. When after-sale-services are performed, the second assembled body 300a integrally coupled to the middle assembled body 200a is separated from the thermal therapeutic apparatus to expose the thermal treatment part 120a (the foot treatment device) of the first assembled body 100a to the outside.

The reference numbers 130, 130a, 230, and 230a denote coupling holes through which coupling bolts couple the base plate and the side plate to the foldable support 400.

To use the thermal therapeutic apparatus according to the present invention, the fist assembled bodies 100 and 100a are firstly assembled to install the thermal treatment parts 120 and 120a, such as the backbone adjustment device and the foot pressure device, on the base plates 110 and 110a, respectively, and the middle assembled bodies 200 and 200a are also assembled to include the side plates 220 and 220a, and the covering units 210 and 210a, respectively. Also, the second assembled bodies 300 and 300a are assembled such that the artificial leathers 320 and 320a enclose the urethane surfaces, respectively. Thereafter, the middle assembled bodies 200 and 200a are integrally coupled to the lower

end of the second assembled bodies 300 and 300a using the known-well coupling method.

Thereafter, the fist assembled bodies 100 and 100a are each coupled to the upper end of the foldable support 400 through the coupling holes 130 and 130a formed at the front and rear sides of the base plates 110 and 110a.

When the second assembled bodies 300 and 300a are set on the upper portions of the first assembled bodies 100 and 100a, the covering units 210 and 210a of the middle assembled bodies 200 and 200a cover parts of the thermal treatment parts 120 and 120a such that the thermal treatment parts 120 and 120a can smoothly operated. Here, the thermal treatment parts 120 and 120a are located at the cavities 310 and 310a.

Here, when the coupling bolts are screwed into the coupling holes 230 and 230a formed on the side plates 220 and 220a, the second assembled bodies 300 and 300a are integrally coupled to the middle assembled bodies 200 and 200a, and thereby integrally coupled to the foldable support 400.

On the other hand, to perform after-sale-services on the apparatus, a user loosens the coupling bolts to separate the second assembled bodies 300 and 300a from the foldable support 400.

When the user lifts up the separated second assembled bodies 300 and 300a, the middle assembled bodies 200 and 200a are also separated from the first assembled bodies 100 and 100a. At this time, the thermal treatment parts 120 and 120a such as the backbone adjustment device and the foot treatment device are naturally

exposed. Therefore, the user can easily perform such after-sale-services.

[Effect of the Invention]

As described above, according to the present invention, the thermal therapeutic apparatus for pressuring, fomenting and adjusting a user's backbone can be equally divided into the first and second assembled bodies and then assembled. Therefore, the production cost for the thermal therapeutic apparatus can be reduced and assembling works can be easily performed.

Also, when the second assembled bodies are separated from the first assembled bodies for after-sale-services, the thermal treatment parts installed on the base plate are naturally exposed to the outside. Namely, the thermal therapeutic apparatus of the present invention does not require an additional disassembling work. Thus, the after-sale-service can be easily performed.

It is to be understood that, the invention is never restricted to that embodiment and a variety of modifications and alterations which would be possible to a skilled man in the art by referring to the description or drawings presented here and within the spirit of the invention and thus those modifications or alterations are to fall within the scope of the invention, which the scope should be limited only by the attached claims.

WHAT IS CLAIMED IS:

1. An assembly structure of a thermal therapeutic apparatus having an upper treatment mat (500) on which a backbone adjustment device (120) for allowing treatment elements (122) such as a roller or a pressure ball to reciprocate back and forth is installed lengthwise, for supporting the upper body of a user, and a lower treatment mat (510), in the middle portion of which a foot treatment device 120a is formed, for supporting the lower body of the user, the assembly structure comprising:

first assembled bodies (100, 100a) which are formed as a structure as thermal treatment parts (120, 120a) are installed on the base plates (110, 110a) of the upper treatment mat (500) and the lower treatment mat (510), respectively;

middle assembled bodies (200, 200a) at the front and rear sides of which covering units (210, 210a) for covering the thermal treatment parts (120, 120a) are formed, having side plates (220, 220a) coupled to lower right and left ends of the covering units (210, 210a) by the coupling bolts (240, 240a); and

second assembled bodies (300, 300a) which are integrally coupled to upper portions of the middle assembled bodies (200, 200a), wherein:

the second assembled bodies (300, 300a) form cavities (310, 310a) in the middle portion thereof, which are used by the thermal treatment parts (120, 120a);

the surfaces of the second assembled bodies (300, 300a) forming the cavities (310, 310a) are urethanes (330, 330a) and

covered by artificial leathers (320, 320a); and
the second assembled bodies (300, 300a) are separated from
the first assembled bodies, together with the middle assembled
bodies (200, 200a), such that the thermal treatment parts (120,
120a) can be exposed to the outside.

[Drawings]